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EXAMINER

LOVEL, KIMBERLY M

ART UNIT	PAPER NUMBER
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2167

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/706,124

Applicant(s)

OKUMURA, KAORU

Examiner

Kimberly Lovel

Art Unit

2167

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10,13,15,17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13, 15, 17 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This communication is responsive to the Amendment filed 19 January 2007.
2. Claims 1-10, 13, 15, 17 and 19 are pending in this application. Claims 1, 13, 15, 17 and 19 are independent. In the Amendment filed 19 January 2007, claims 1, 13, 15, 17 and 19 have been amended. This action is made Final.

Claim Rejections - 35 USC § 101

3. The rejections of claims 1-10, 13, 15, 17 and 19 under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter have been withdrawn as necessitated by amendment.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-5, 7, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2003/0088547 to Hammond (hereafter Hammond) in view of US Patent No. 6,393,399 to Even (hereafter Even).**

Referring to claim 1, Hammond discloses a method for making additional terms available to a searching process [expanding the query] (see abstract), the method comprising:

receiving an input string [query] that incorporates a plurality of characters separated by at least one space [natural language search: i.e, the global warming cholera outbreak] (see [0038] and [0046], lines 1-3);

providing the input string and the at least one additional term [unentered terms] to the search process ["After the key terms of a query have been identified, the query is expanded to include terms related to the terms entered by the user, method step D.

Terms added to the query as part of the expansion process are referred to as unentered terms and are terms that, despite not being entered by the user, are related to the terms entered by the user, and are thus helpful when conducting a comprehensive search.

The unentered terms included in the expanded query may be related to the entered terms in an unlimited number of ways."] (see [0040], lines 1-9); and

displaying a search result identified by the search process as being related to the at least one additional term (see [0057], lines 1-3).

However, while Hammond discloses providing additional terms to a query, Hammond fails to explicitly disclose the limitation of forming the at least one additional term by concatenating the plurality of characters. Even provides a method for analyzing a text string and using a compounder process to provide compound words (see abstract; column 1, lines 55-59; and Fig 2). In particular, Even discloses concatenating the plurality of characters to form at least one additional term (see column 4, lines 18-26 – in the example, the characters are “Wahl,” “Kampf” and “Geschichten;” concatenating the characters forms the additional term “WahlfKampfGeschichten”) in order to form related forms of the original entered term.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize Even’s compounder process to create the unentered terms of Hammond. One would have been motivated to do so since compound terms are considered to represent related forms of the original entered term and Hammond provides the ability for the expanded query to be related to the entered terms in a number of ways (Hammond: see [0040], lines 7-9). Furthermore, one would have been motivated to do so in order to provide comprehensive search results that cover natural language queries submitted in a multitude of languages.

Referring to claim 2, the combination of Hammond and Even (hereafter Hammond/Even) discloses the method of claim 1, wherein,

receiving a string comprises receiving a string that incorporates a first set of characters separated by a space from a second set of characters (Even: see column 4, lines 18-26 – in the example, the characters are “Wahl,” “Kampf” and “Geschichten”); and

concatenating comprises concatenating the first and second sets of characters (Even: see column 4, lines 18-26 – concatenating the characters forms the additional term “WahlKampfGeschichten”).

Referring to claim 3, Hammond/Even discloses the method of claim 2, wherein the first and second sets of characters are each a single character (Even: see column 4, lines 18-26 – the compounder process concatenates the words no matter how many characters exist in a word).

Referring to claim 4, Hammond/Even discloses the method of claim 1, and further comprising preprocessing [parsing out extraneous information] the input string (Hammond: see [0039]).

Referring to claim 5, Hammond/Even discloses the method of claim 4, wherein preprocessing includes removing at least one extraneous character [“the”] from the input string (Hammond: see [0039], lines 4-7).

Referring to claim 7, Hammond/Even discloses the method of claim 1, wherein the method is executed upon a client system [computer connected to the network] (see [0036]).

Referring to claim 8, Hammond/Even discloses the method of claim 1, wherein the method is executed upon a server (Hammond: see [0036]).

Referring to claim 10, Hammond/Even discloses the method of claim 1, wherein the input string [query] is a search string (Hammond: see [0046], lines 1-3).

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2003/0088547 to Hammond in view of US Patent No. 6,393,399 to Even as applied to claim 1 above, and further in view of US Patent No. 7,027,987 to Franz et al (hereafter Franz et al).

Referring to claim 6, Hammond/Even discloses the creation of additional terms. However, Hammond/Even fails to explicitly disclose the further limitation of suppressing at least one additional term. Franz discloses providing results to a search query (see abstract), including the further limitation of suppressing at least one additional term (Franz et al: see column 6, lines 53-56 - according to page 14, lines 13-17 of the applicant's specification, "suppression may be applied in regard to the level or number of words or characters that can be concatenated;" the query restraint parameters the number of hypotheses to be considered and the total number of words to be included in a query are considered to represent suppressing the *at least one additional term*) in order to reduce long processing times of a query.

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the concept of suppression with the expanded query of Hammond/Even. One would have been motivated to do so in order to reduce long processing times of a query resulting from too many variants of a term.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2003/0088547 to Hammond in view of US Patent No. 6,393,399 to Even as applied to claim 1 above, and further in view of the article "College Algebra Tutorial 57: Combinations" by WTAMU (hereafter WTAMU).

Referring to claim 9, Hammond/Even discloses a method for providing additional search terms to the search process (Hammond: see [0040], lines 1-3) based on word adjacency [forming compound words] (Even: column 4, lines 18-26). However, Hammond/Even fails to explicitly teach the further limitation wherein the string includes N words, and wherein (N-1) (N/2) additional search terms are provided to the search process based upon word adjacency. WTAMU discloses a formula that provides the same results as the formula wherein the string includes N words, and wherein (N-1) (N/2) additional search terms are provided to the search process based on word adjacency (see page 2, line 4 – the formula for combinations). If the variable r is set to 2, then the formula for combinations provides the same result as the formula (N-1)(N/2). For example, if N=6, then the formula for combinations yields $(6!/((6-2)!*2!)) = (6!/(4!2!)) = 15$ and the formula (N-1)(N/2) yields $(6-1)(6/2) = (5)(3) = 15$. Also, if N=7, then the formula for combinations yields $(7!/((7-2)!*2!)) = (7!/(5!2!)) = 21$ and the formula (N-1)(N/2) yields $(7-1)(7/2) = (6)(3.5) = 21$.

It would have been obvious to one of ordinary skill in the art to set the variable r equal to 2 in the formula for combinations in order to create a subset in the same manner as using an equation such as (N-1)(N/2) to create a subset. One would have

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been motivated to do so in order to limit the number of combinations represented by the subset.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use WTAMU's formula for combinations with the variable r equal to 2 to generate a subset as a method for calculating the number of concatenated terms to utilize in the query of Hammond/Even. One would have been motivated to do so in order to reduce long processing times that result from over-generating variants of a term.

8. Claims 13, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2004/0078366 to Crooks et al (hereafter Crooks et al) in view of US PGPub 2003/0088547 to Hammond.

Referring to claim 13, Crooks et al disclose a method for making additional terms available to a searching process (see abstract), the method comprising:

receiving an input string ["Z-pac"] that incorporates a plurality of characters separated by at least one hyphen (see [0022], lines 12-13 and [0024], lines 48-49 – the system receives an input string from a user); and

removing the at least one hyphen to form at least one additional term (see [0024], lines 48-50 – the term "Zpac" is formed after eliminating the hyphen from the term "Z-pac").

However, while Crooks creates an additional term, Crooks fails to explicitly disclose the further limitations of providing the input string and the at least one additional term to the search process and displaying a search result. Hammond discloses expanding a query with related terms (see [0040], lines 1-3), including the further limitations of providing the input string [query] and the at least one additional term [unentered terms] to the search process ["After the key terms of a query have been identified, the query is expanded to include terms related to the terms entered by the user, method step D. Terms added to the query as part of the expansion process are referred to as unentered terms and are terms that, despite not being entered by the user, are related to the terms entered by the user, and are thus helpful when conducting a comprehensive search. The unentered terms included in the expanded query may be

related to the entered terms in an unlimited number of ways.”] (Hammond: see [0040], lines 1-9) and displaying a search result identified by the search process as being related to the at least one additional term (see [0057], lines 1-3) in order to provide comprehensive search results.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the feature of Hammond for including an original term and a variation of the original term in a query and then displaying the results of that query as additional steps after Crooks et al provides variations of search terms. One would have been motivated to do so since Hammond provides the ability for the expanded query to be related to the entered terms in a number of ways (Hammond: see [0040], lines 7-9). Furthermore, one would have been motivated to do so in order to provide comprehensive search results.

Referring to claim 15, Crooks discloses a method for making additional terms available to a searching process (see abstract), the method comprising:

receiving an input string [vibra-tabs] that incorporates a plurality of characters separated by at least one hyphen (see [0022], lines 12-13 and [0024], lines 50-54 – the system receives an input string from a user); and

replacing the hyphen with a space to form at least one additional term (see [0024], lines 50-54 – the term “vibra tabs” is formed after the hyphen is removed from the term “vibra-tabs”).

However, while Crooks creates an additional term, Crooks fails to explicitly disclose the further limitations of providing the input string and the at least one

additional term to the search process and displaying a search result. Hammond discloses expanding a query with related terms (see [0040], lines 1-3), including the further limitations of providing the input string [query] and the at least one additional term [unentered terms] to the search process ["After the key terms of a query have been identified, the query is expanded to include terms related to the terms entered by the user, method step D. Terms added to the query as part of the expansion process are referred to as unentered terms and are terms that, despite not being entered by the user, are related to the terms entered by the user, and are thus helpful when conducting a comprehensive search. The unentered terms included in the expanded query may be related to the entered terms in an unlimited number of ways."] (Hammond: see [0040], lines 1-9) and displaying a search result identified by the search process as being related to the at least one additional term (see [0057], lines 1-3) in order to provide comprehensive search results.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the feature of Hammond for including an original term and a variation of the original term in a query and then displaying the results of that query as additional steps after Crooks et al provides variations of search terms. One would have been motivated to do so since Hammond provides the ability for the expanded query to be related to the entered terms in a number of ways (Hammond: see [0040], lines 7-9). Furthermore, one would have been motivated to do so in order to provide comprehensive search results.

Referring to claim 19, Crooks discloses a method for making additional terms available to a searching process (see abstract), the method comprising:

receiving an input string that incorporates a plurality of terms separated by a space or a hyphen [vibra-tabs] (see [0022], lines 12-13 and [0024], lines 50-54 – the system receives an input string from a user); and

generating at least one additional term by performing an operation selected from the group consisting of removing a space between the plurality of terms, removing a hyphen between the plurality of terms, replacing a space between the plurality of terms with a hyphen, and replacing a hyphen between the plurality of terms with a space (see [0024], lines 50-54 – *removing a hyphen between a plurality of terms* is considered to represent the selected operation; the term “vibra tabs” is formed after the hyphen is removed from the term “vibra-tabs”).

providing said at least one additional term to the searching process (see [0025], lines 3-5 – the normalizer performs the step of removing the hyphen which results in providing an additional term for the search process).

However, while Crooks creates an additional term, Crooks fails to explicitly disclose the further limitations of providing the input string and the at least one additional term to the search process and displaying a search result. Hammond discloses expanding a query with related terms (see [0040], lines 1-3), including the further limitations of providing the input string [query] and the at least one additional term [unentered terms] to the search process [“After the key terms of a query have been identified, the query is expanded to include terms related to the terms entered by the

user, method step D. Terms added to the query as part of the expansion process are referred to as unentered terms and are terms that, despite not being entered by the user, are related to the terms entered by the user, and are thus helpful when conducting a comprehensive search. The unentered terms included in the expanded query may be related to the entered terms in an unlimited number of ways.”] (Hammond: see [0040], lines 1-9) and displaying a search result identified by the search process as being related to the at least one additional term (see [0057], lines 1-3) in order to provide comprehensive search results.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the feature of Hammond for including an original term and a variation of the original term in a query and then displaying the results of that query as additional steps after Crooks et al provides variations of search terms. One would have been motivated to do so since Hammond provides the ability for the expanded query to be related to the entered terms in a number of ways (Hammond: see [0040], lines 7-9). Furthermore, one would have been motivated to do so in order to provide comprehensive search results.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 7,027,987 to Franz et al in view of US PGPub 2004/0205672 to Bates et al (hereafter Bates et al) in view of US PGPub 2003/0088547 to Hammond.

Referring to claim 17, Hammond discloses a method for making additional terms available to a searching process [expanding the query] (see abstract), the method comprising:

receiving an input string [query] that incorporates a plurality of characters separated by at least one space [natural language search: i.e, the global warming cholera outbreak] (see [0038] and [0046], lines 1-3);

providing the input string and the at least one additional term [unentered terms] to the search process ["After the key terms of a query have been identified, the query is expanded to include terms related to the terms entered by the user, method step D. Terms added to the query as part of the expansion process are referred to as unentered terms and are terms that, despite not being entered by the user, are related to the terms entered by the user, and are thus helpful when conducting a comprehensive search. The unentered terms included in the expanded query may be related to the entered terms in an unlimited number of ways."] (see [0040], lines 1-9); and

displaying a search result identified by the search process as being related to the at least one additional term (see [0057], lines 1-3).

However, while Hammond discloses providing additional terms to a query, Hammond fails to explicitly disclose the limitation of replacing the space with a hyphen to form at least one additional term. Bates et al discloses a method for determining

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variants of words (see abstract). In particular, Bates discloses the limitation of replacing said at least one space with a hyphen to form at least one additional term (see [0030], lines 8-9; [0095]; and Fig 9, item 220 – a variant of E mail is E-mail).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize Bates's method of determining variants of compound words as a subcomponent to Hammond's method for providing related unentered terms to a searching process. One would have been motivated to do so since hyphenated words are considered to represent related forms of the original entered term and Hammond provides the ability for the expanded query to be related to the entered terms in a number of ways (Hammond: see [0040], lines 7-9). Furthermore, one would have been motivated to do so in order to provide comprehensive search results.

Response to Arguments

10. Applicant's arguments filed 4 August 2006 in regards to **claims 3 and 9** have been fully considered but they are not persuasive.

In regards to **claim 1**, Applicant argues the following on pages 7-8: The Office Action then turns to Hammond which allegedly provides the further limitation of providing the input string and the least one additional term to the search process. The Office Action cites paragraph 0053, lines 14-18 of the Hammond reference providing this feature. However, variation resolver of Hammond simply provides accepted or commonly used variations of particular terms. Accordingly, the Hammond reference can only be considered to teach the addition of words related to the queries that are based on a *prior* information relative to the search terms. It cannot be considered to teach or suggest a provision of an automatically derived concatenation of an additional term to the input query. To the extent that the Hammond reference is being construed to provide otherwise, Applicant respectfully submits that such construction is based on a firm understanding of Applicant's specification and is based on thus hindsight.

The examiner respectfully disagrees. Hammond discloses expanding a query using unentered terms. Hammond states "The unentered terms included in the expanded query may be related to the entered terms in an unlimited number of ways. (see [0040], lines 7-9)" Concatenating words to form compound words is considered to represent the creation of related terms. Furthermore, Hammond states "unentered terms may be, for example, a synonym of an entered term or a term pre-determined to be related to an entered term such as, for example, the entered term's causative agent.

(see [0040], lines 10-13)" Hammond is just merely giving examples of ways in which the related terms can be formed and is not limiting the formation to only these methods.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Also, in regards to **claim 1**, Applicant argues the following on page 8: As claimed, the displayed search result is identified by the search process as being related to the concatenated plurality of characters. It is respectfully pointed out that none of the references cited by the Examiner teaches or suggests displaying a search result identified by a search process as being related to a concatenation of an input search string. The Hammond reference cited by the Examiner would seem to teach, at the most, a method of query expansion involving an addition of synonyms to a search string. However, there is absolutely no teaching or suggestion of displaying a search result as claimed. In light of the fact that the cited references, considered independently or in combination, fail to teach or suggest at least one element of claim 1, it is respectfully submitted that the Examiner has failed to establish a *prima facie* case of obviousness for that claim.

The examiner respectfully disagrees. Hammond discloses displaying a search result (see [0057], lines 1-3). Hammond is searching with a query that includes entered and unentered terms. Therefore, the results displayed will have been identified by the search process as being related to the query, which includes the unentered (additional) term.

Also, since the cited references, considered in combination, suggest all elements of claim 1, a proper *prima facie* case of obviousness for the claim has considered to have been established.

11. In regards to **claim 9**, Applicant argues the following on pages 9-10: The prior art fails to teach wherein the terms are provided to the search process based upon word adjacency. Also, one of ordinary skill in the art would not set r equal to 2.

The examiner respectfully disagrees. The prior art of Hammond/Even factors in the concept of word adjacency through concatenation. Also, one of ordinary skill in the art would select r equal to 2 in order to set a baseline for an optimal number of combinations.

12. All other arguments with respect to **claims 13, 15, 17 and 19** have been considered but are moot in view of the new ground(s) of rejection due to the amendment.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Contact Information


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly Lovel whose telephone number is (571) 272-2750. The examiner can normally be reached on 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kimberly Lovel
Examiner
Art Unit 2167

22 March 2007
kml


JOHN COTTINGHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

